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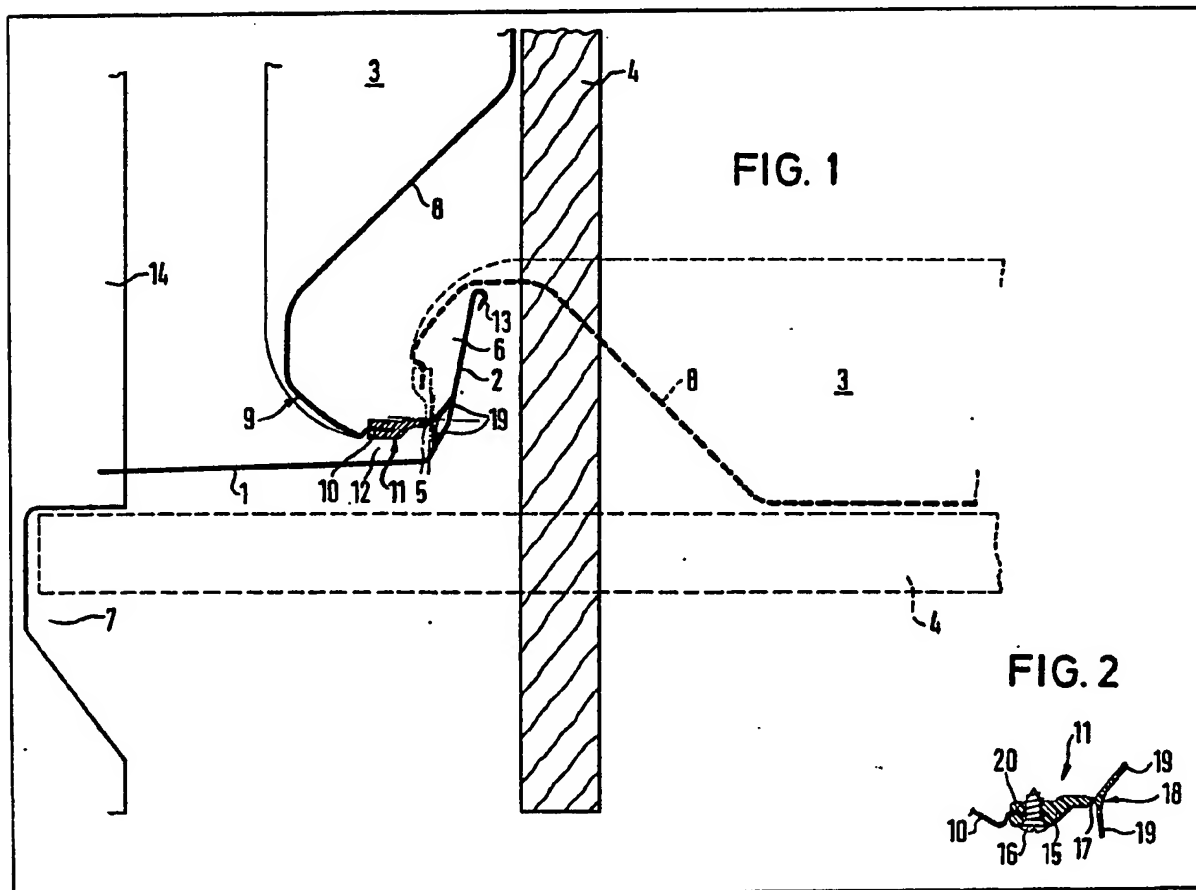
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(11) is provided, the seal having a foot part (15) fastened to the free end portion (10) of the lip (9) and a resilient head part (18) which bears sealingly against the skirt (2) and which is movably connected to the foot part through a film hinge (17).

(54) Door sealing in a dishwashing machine

(57) A dishwashing machine comprises a rinsing container having a base (1) and a skirt (2) extending up to the lower edge region of an access opening of the container, and a multi-part door for closing the access opening. The door comprises an inner element (3) with a lip (9) depending from an inwardly angled lower portion (8) of the element. To prevent dirt accumulation on the skirt (2), a strip-shaped skirt seal



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FIG. 1

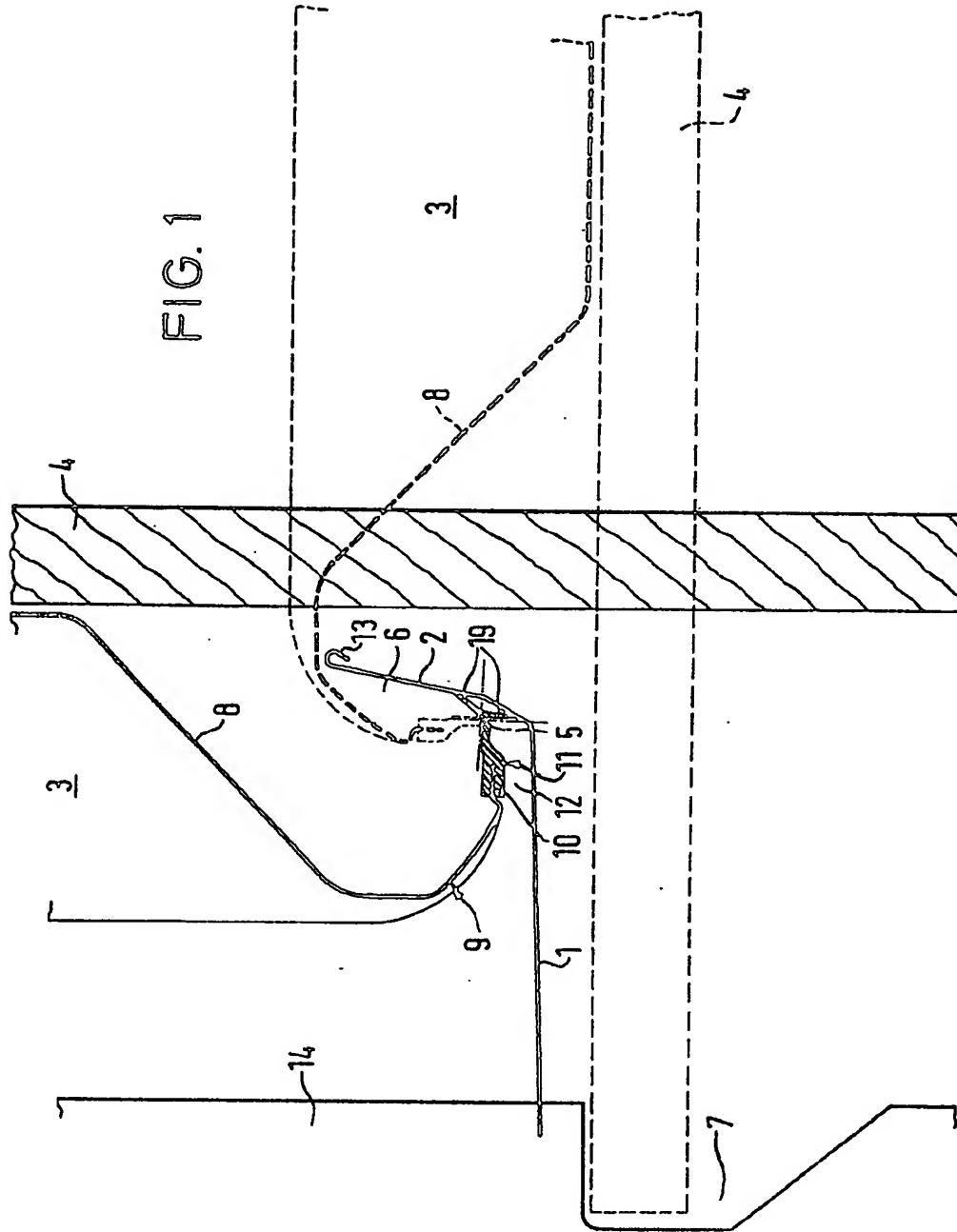


FIG. 2

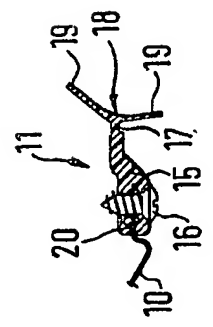


FIG. 4

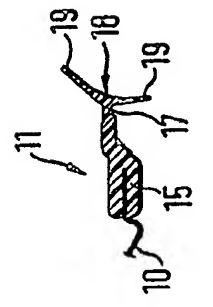


FIG. 6

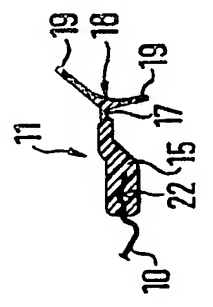


FIG. 8

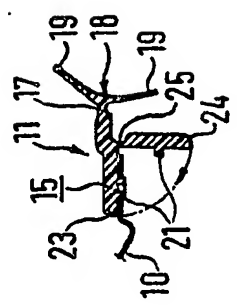


FIG. 3

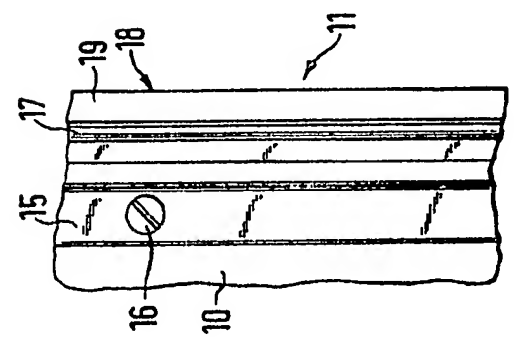


FIG. 5

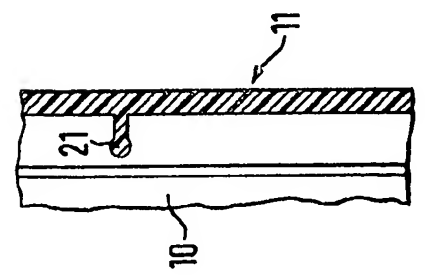
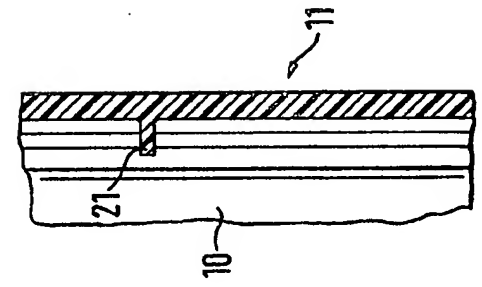


FIG. 7



SPECIFICATION

D or sealing in a dishwashing machine

5 The present invention relates to a dishwashing machine and has particular reference to door sealing in such a machine.

In German (Fed. Rep.) Utility Model No. 70 17 821 there is disclosed a dishwashing
10 machine with a front side door, which is double-walled and in which a seal of rubber-elastic material is arranged between a rinsing container of the machine and the inside wall of the door. The strip is approximately U-
15 shaped in cross-section, extends over the entire width of the door and is fastened at one limb to the inside wall of the door and at its other limb to a skirt of the rinsing container, while the portion of the sealing strip between
20 the limbs extends arcuately into the hollow space between the inside wall and the outside wall of the door. In that case, the outside door wall extends down over a pivot axis of the door and this axis is disposed high above the
25 rinsing container base. In this dishwashing machine, which in the absence of a pedestal recess in the machine is not able to be clad with an attachment plate projecting beyond the lower edge of the door, dirt can drip onto
30 the skirt during loading of the crockery baskets, deposit in the upper skirt portion and in the course of time form a dirt zone which, during each loading and unloading of the machine, is fully in the field of view of the
35 operator. Since the machine cannot be clad with furniture attachment doors of kitchen cupboards, an installation, which is adapted in appearance to kitchen furniture, of the machine into a kitchen furniture line is excluded.

40 In another known dishwashing machine (FR-OS 24 97 653), the door is provided with an attachment plate projecting into a pedestal region and mounted to be pivotable about a horizontal axis which extends in the
45 region of the transition of the rinsing container base to the skirt, wherein the vertical plane of the pivot axis lies externally of the rinsing container at a spacing in front of the skirt. An inside element of the door has a
50 lower slightly curved lip provided at its rim with an annular sealing strip which in the closed setting of the door lies against the transition of the rinsing container base to the skirt and in the open setting of the door at the
55 upper skirt rim. It has been found that in the open setting of the door, the skirt portion between the upper rim and the transition to the rinsing container base lies free so that a dirt zone, which cannot be carried away by
60 the rinsing liquid and lies in the field of view of the operator, forms on this skirt portion.

There is therefore a need for a skirt seal which is of simple construction and capable of
65 simple assembly and which counteracts the formation of a dirt zone at the rinsing con-

tainer skirt.

According to the present invention there is provided a dishwashing machine comprising a housing, a rinsing container arranged in the
70 housing and having an access opening at a front side of the housing and a skirt portion extending upwardly from the base of the container to the region of the lower edge of the access opening, a door which is mounted
75 on the housing to be pivotable about a substantially horizontal axis between a closed and an open position respectively closing and opening the access opening and which has a curved lower lip arranged to engage over the
80 skirt portion in the closed and the open position of the door, and a sealing strip of resilient material comprising a securing portion secured to the free end portion of the lip and a
85 sealing portion movably connected to the securing portion by a hinge portion and disposed in sealing engagement with the skirt portion.

In such a dishwashing machine it is advantageous that the securing portion of the sealing strip can be tightly fastened to the lip free
90 end portion simply by screws, rivetting or clamping, and that the sealing portion hingedly and integrally connected thereto takes over the sealing of the rinsing container at the
95 skirt portion.

If the pivot axis of the door is arranged in the height region of the transition of the rinsing container base into the skirt portion and extends within the rinsing container skirt
100 space, then the hinge axis of the hinge portion can be disposed in the pivot axis course. Through the movable connection of the securing portion and the sealing portion by means of the hinge portion, it is possible for the
105 securing portion, during opening and closing of the door, to travel with the lip of the door under bending of the hinge portion, whilst the sealing portion is subject to a constant bias and does not change its sealing location at the
110 lip. Since the lip up to this sealing location is acted on by rinsing water from the rinsing container and the sealing location does not change along the skirt portion between the open and closed setting of the door, any dirt
115 and food remnants falling onto the skirt underneath the sealing location during charging of the machine can be carried away by the rinsing water during the following rinsing program.

120 Embodiments of the present invention will not be more particularly described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a schematic sectional elevation
125 of a skirt sealing region in a dishwashing machine embodying the invention, wherein a closed setting of a door of the machine is shown in solid lines and an open setting in dashed lines; and

130 Figures 2 to 8 are sectional end and plan

views of different forms of skirt seal usable in the machine of Fig. 1.

Referring now to the drawings, there is shown a rinsing container of a dishwashing machine (not shown in more detail), the rinsing container comprising a base 1 and, in the region of a charging opening at the front side of the machine, a drawn-up skirt 2, which is to be sealed off against a double-walled door closing the opening. Merely an inner door element 3 and an attachment plate 4 fastened on an outer door element (not shown) of the door are illustrated. The door is pivotable about a horizontal axis 5 between a closed and an open setting. The pivot axis 5 is formed by bearing blocks firmly connected to the machine housing and extends in the height region of the transition of the rinsing container base 1 into the skirt 2, the axis passing through the rinsing container skirt space 6. The attachment plate 4 consists of, for example, wood and particularly serves for adaptation of the machine front to the appearance and the pedestal height of adjoining kitchen cupboards. Designated by 7 is a pedestal recess in the machine body 14, into which the plate 4 is pivotable when the door is opened.

The element 3 has a lower side portion 8 and an arcuately curved lip 9 depending therefrom, a skirt seal 11 being fastened to the free end 10 of the lip 9. In the closed setting of the door, the lip 9 leaves free a gap 12 above the base 1 so that rinsing water from the rinsing container can wipe the skirt seal 11 and clean the skirt portion under the sealing location. When the door is opened, the door lip 9 covers the upper skirt rim 13 and the upper skirt portion up to the sealing location.

The strip-shaped seal 11, extending over the width of the door along the lip end 10, consists particularly of synthetic material and has a foot part 15 fastened to the lip end 10 by, for example, screws 16 (Figs. 2 and 3). Connected with the foot part 15 by way of a film hinge 17 is a head part 18, which under a certain bias—exerted through the door mounted at the axis 5—sealingly bears against the skirt 2. For enhanced sealing effect, the head part 18 comprises two sealing lips 19 extending approximately in V-shape and resiliently bearing against the skirt.

An advantageous, tight fastening of the seal 11 results when the foot part 15 has a slot 20, into which the lip end 10 is pushed. In addition, webs 21 serving for securement can be provided on the strip 11 (Figs. 4 and 5).

According to a further embodiment (Figs. 6 and 7), the foot part 15 of the seal 11 in longitudinal direction forms a crimped connection 22 with the lip end 10 between a channel or groove of the one part and a raised bead of the other part.

In particularly advantageous embodiment

(Fig. 8), the foot part 15 consists of an upper part 23 and a lower part 24, which are connected together by a film hinge 25, the upper part 23 and the lower part 24 being interconnectible with the lip end 10.

CLAIMS

1. A dishwashing machine comprising a housing, a rinsing container arranged in the housing and having an access opening at a front side of the housing and a skirt portion extending upwardly from the base of the container to the region of the lower edge of the access opening, a door which is mounted on the housing to be pivotable about a substantially horizontal axis between a closed and an open position respectively closing and opening the access opening and which has a curved lower lip arranged to engage over the skirt portion in the closed and the open position of the door, and a sealing strip of resilient material comprising a securing portion secured to the free end portion of the lip and a sealing portion movably connected to the securing portion by a hinge portion and disposed in sealing engagement with the skirt portion.

2. A dishwashing machine as claimed in claim 1, wherein the sealing portion is more flexible than the securing portion.

3. A dishwashing machine as claimed in either claim 1 or claim 2, wherein the securing portion of the sealing strip is secured to the said free end portion by at least one of threaded fastening means, rivets and clamping means.

4. A dishwashing machine as claimed in any one of the preceding claims, wherein the securing portion of the sealing strip is provided with a slot receiving said free end portion.

5. A dishwashing machine as claimed in any one of the preceding claims, wherein the securing portion of the sealing strip is provided with spaced apart projections engaged in recesses in said free end portion.

6. A dishwashing machine as claimed in any one of the preceding claims, wherein one of said securing portion and said free end portion has a groove extending longitudinally of the strip and the other one of those two portions has a bead engaged in the groove.

7. A dishwashing machine as claimed in any one of claims 1 to 3, wherein the securing portion of the sealing strip comprises an upper part and a lower part which are connected together by an integral hinge and secured to said free end portion.

8. A dishwashing machine as claimed in any one of the preceding claims, wherein the sealing portion of the sealing strip comprises two sealing lips each extending at an angle relative to the other and each bearing against the skirt portion.

9. A dishwashing machine as claimed in

- any one of the preceding claims, wherein the pivot axis of the door is disposed substantially at the level of the transition between the rinsing container base and the skirt portion
- 5 and extends through the container interior in the region of the skirt portion, and the hinge portion of the sealing strip is bendable about a hinge axis coincident with the pivot axis, the sealing strip being so arranged that on pivotal
- 10 movement of the door and consequent bending of the hinge portion the sealing portion of the sealing strip is maintained in sealing engagement with the skirt portion under a constant bias.
- 15 10. A dishwashing machine substantially as hereinbefore described with reference to Fig. 1 of the accompanying drawings.
11. A dishwashing machine substantially as hereinbefore described with reference to
- 20 Figs. 2 and 3 of the accompanying drawings.
12. A dishwashing machine substantially as hereinbefore described with reference to Figs. 4 and 5 of the accompanying drawings.
13. A dishwashing machine substantially
- 25 as hereinbefore described with reference to Figs. 6 and 7 of the accompanying drawings.
14. A dishwashing machine substantially as hereinbefore described with reference to Fig. 8 of the accompanying drawings.